PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Suraj Singh	Examiner: Tran, Khai
Serial No.:	10/625,062	Group Art Unit: 2611
Filed:	July 22, 2003	Docket No.: 1020.P16540
Title:	IMPROVED TIMING ERROR DETECTION FOR A DIGITAL RECEIVER	

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Commissioner for Patents
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Applicant has carefully reviewed and considered the Final Office Action mailed on May 14, 2007 and the cited references. In response to the Final Office Action, Applicant respectfully requests review prior to the filing of an Appeal Brief.

Claim Rejections – 35 USC §102(b) and §103(a)

Claims 1-23, 25-38, 41 and 43 are pending in the present application.

Claims 1-19 currently stand rejected under 35 USC § 102(e) as being unpatentable over Ahn. (US 2003/016393 A1) (hereinafter "Ahn").

Claims 20-23, 25-38 and 40-43 currently stand rejected under 35 USC § 103(a) as being unpatentable over Ahn in view of Cannon (US 2006/0031275 A1) (hereinafter "Cannon").

Applicant respectfully traverses these rejections.

REMARKS

Applicant respectfully submits that Ahn fails to teach or fairly suggest the features recited in claims 1-19. For example, independent claim 1 recites:

1. (Previously Presented) An apparatus comprising:

> a timing error detector to detect a timing error for symbol sampling, the timing error detector to detect an amount of timing error based upon a value of an intersymbol sample as compared to an average value of a plurality of symbol samples, wherein the apparatus is adapted to apply a correction to the timing of symbol sampling if the amount of timing error exceeds a threshold.

According to the Office Action mailed on May 14, 2007 ("the Office Action"), Ahn discloses at paragraphs [0059] to [0063], "wherein the apparatus is adapted to apply a correction to the timing of symbol sampling if the amount of timing error exceeds a threshold" as recited in claim 1. Applicant respectfully disagrees.

According to the Office Action, Ahn, at the given cite, discloses "wherein the multiplication of a difference signal between two symbol samples and an intermediate sample thereof, and extracting a sign only from a result of the multiplication as a timing error, which permits to provide a very great average gain of the timing error, can shorten a time period required for capturing the timing error. Especially since a very great gain can be obtained even in a case a 0 dB ghost is present, a timing offset can be captured within a short time period. Therefore, when the difference of two symbol symbols and an intermediate sample as the amount of timing error exceeds a threshold, a correction is thus applied to the timing of symbol sampling for providing a very great average gain of timing error and shortening a time period required for capturing the timing error as illustrated by Ahn." Applicant respectfully submits that this is clearly different than the above recited teaching of claim 1.

Applicant respectfully submits that Ahn fails to teach or suggest all of the limitations contained in claim 1. Ahn at the given cite, in relevant part, states:

> [0059] FIG. 7 illustrates an experimental graph comparing average gains (S curve) of a related art timing error detecting part and a timing error detecting part of the present invention....
>
> [0060] FIG. 8 illustrates an experimental graph comparing average

> gains (S curve) of a related art timing error detecting part and a timing error detecting part of the present invention....
>
> [0061] From the result of experiment, it can be known that the average gain of the timing error detecting part of the present invention is excellent compared to the related art timing error detecting part....
>
> [0062] The present invention is applicable to a communication field of VSB/QPSK/QAM.
>
> [0063] The multiplication of a difference signal between two symbol samples and an intermediate sample thereof, and extracting a sign only from a result of the multiplication as a timing error, which permits to provide a very great average gain of the timing error, can shorten a time period required for capturing the timing error. Especially, since a very great gain can be obtained even in a case a 0 dB ghost is present, a timing offset can be captured within a short time period.

By way of contrast, the claimed subject matter teaches "wherein the apparatus is adapted to apply a correction to the timing of symbol sampling if the amount of timing error exceeds a threshold." Applicant respectfully submits that this language is clearly different than the above recited teaching of Ahn.

Applicant respectfully submits that the cited portions of Ahn fail to disclose at least the missing language of claim 1 as recited above. For example, paragraphs [0059]-[0061] of Ahn appear to illustrate comparisons between the timing error detection method disclosed in Ahn and timing error detection methods of the prior art. Paragraph [0062] of Ahn appears to merely point out that the timing error detection method of Ahn is applicable to various communication standards. Paragraph [0063] of Ahn describes determining an average gain of the timing error in order to shorten the time required to capture the timing error. None of the cited paragraphs of Ahn, however, describe using a "threshold" in any context, let alone to evaluate "if the amount of timing error exceeds a threshold" as a condition "to apply a correction to the timing of symbol

sampling" as recited in independent claim 1. Applicant respectfully submits that the cited portions of Ahn clearly fail to teach, suggest or disclose the missing language of claim 1.

Applicant respectfully submits that he has been unable to locate any teaching Ahn directed to applying a correction to the timing of a symbol sampling if the amount of timing error exceeds a threshold as recited in claim 1. Consequently, Ahn fails to disclose all the elements or features of the claimed subject matter. Accordingly, Applicant respectfully requests removal of the anticipation rejection with respect to claim 1. Furthermore, Applicant respectfully requests withdrawal of the anticipation rejection with respect to claims 2-12, which depend from claim 1 and, therefore, contain additional features that further distinguish these claims from Ahn.

Claims 13 and 16 recite features similar to those recited in claim 1. Therefore, Applicant respectfully submits that claims 13 and 16 are not anticipated and are patentable over Ahn for reasons analogous to those presented with respect to claim 1. Accordingly, Applicant respectfully requests removal of the anticipation rejection with respect to claims 13 and 16. Furthermore, Applicant respectfully requests withdrawal of the anticipation rejection with respect to claims 14-15 and 17-19 that depend from claims 13 and 16 respectively, and therefore contain additional features that further distinguish these claims from Ahn. Accordingly, Applicants request reconsideration and withdrawal of the § 102(e) rejections.

Applicant further submits that claims 20 and 26 are non-obvious and patentable over Ahn and Cannon, whether taken alone or in combination. Claims 20 and 26 recite features similar to those recited in claim 1. As recited above, Applicant respectfully submits that Ahn fails to teach, suggest or disclose each and every element recited in independent claim 1. Furthermore, Applicant respectfully submits that Cannon also fails to teach, suggest or disclose the missing language. Therefore, Applicant respectfully submits that claims 20 and 26 are not obvious and

are patentable over Ahn and Cannon for reasons analogous to those presented above with respect to impendent claim 1. Accordingly, Applicant respectfully requests removal of the obviousness rejection with respect to claims 20 and 26.

Furthermore, Applicant respectfully submits that if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. *See* MPEP § 2143.03, for example. Therefore, applicant respectfully requests withdrawal of the obviousness rejection with respect to claims 21-23, 25 and 27-28 that depend from claims 20 and 26 respectively, and therefore contain additional features that further distinguish these claims from Ahn and Cannon. Applicant, therefore, respectfully requests the removal of the obviousness rejection with respect to these dependent claims.

It is believed that claims 1-23, 25-38, 41 and 43 are in allowable form. Accordingly, a timely Notice of Allowance to this effect is earnestly solicited. The Examiner is invited to contact the undersigned at 724-933-9338 to discuss any matter concerning this application. The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to the credit card in the previously filed credit card authorization form.

Respectfully submitted,
KACVINSKY LLC

/John F. Kacvinsky/
John F. Kacvinsky, Reg. No. 40,040
Under 37 CFR 1.34(a)

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